Microstructure of peel cell wall and selected physico-chemical characteristics of 'Berangan' banana (Musa cv. Berangan [AAA]) ripened at high temperature

ABSTRACT

Peel of mature-green ôBeranganô banana (Musa cv. Berangan AAA) was investigated by scanning and energy filtering transmission electron microscopy. Fruits were ripened at 25ÚC and 37°C, and micrographs of the fruits were compared at three different stages of ripening namely green, turning yellow and full yellow. Increased of loss of cell wall integrity was exhibited by the fruit ripened at 25°C as compared to that ripened at 37°C, especially at turning yellow and full yellow stages because of pectin solubilization. This is supported by a greater percentage decrease on firmness in banana exposed to 25°C. Transmission micrographs showed empty regions of the middle lamella at 25°C at turning yellow and full yellow stages. However, a higher linear increase in soluble solids concentration at 25°C enhanced the turgor loss in the peel. This could have contributed to the loss of firmness at 25°C that was indicated by the higher linear increase of pulp to peel ratio. Results of this study indicated that 37°C retains the integrity of cell wall, especially of the middle lamella as compared to 25°C.

Keyword: 'Berangan' banana; Peel cell wall; Electron microscopy; Temperature; Physico-chemical properties